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# **Australian Standard**

## **2536—1982**

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# **SURFACE TEXTURE**



**STANDARDS ASSOCIATION OF AUSTRALIA**  
*Incorporated by Royal Charter*



This Australian standard was prepared by Committee ME/27, Engineering Tolerance Systems, Metrology and Surface Quality. It was approved on behalf of the Council of the Standards Association of Australia on 10 March 1982 and published on 19 July 1982.

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The following interests were represented on the committee responsible for the preparation of this standard:

Bureau of Steel Manufacturers of Australia  
Confederation of Australian Industry  
CSIRO, Division of Applied Physics  
CSIRO, Division of Manufacturing Technology  
Department of Defence  
Department of Industry and Commerce  
Department of Technical and Further Education, N.S.W.  
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AUSTRALIAN STANDARD

SURFACE TEXTURE

AS 2536—1982

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## PREFACE

This standard was prepared by the Association's Committee on Engineering Tolerance Systems, Metrology and Surface Texture. It is intended to provide a comprehensive treatment of the topography of surfaces insofar as is practical having regard to the state of current knowledge.

The standard includes material related to the specifying and measuring of surface roughness together with information on instrument requirements, surface roughness comparison specimens, and calibration specimens. In order to promote as wide an understanding of the subject as possible, appendices give discursive material on the use of stylus instruments, the specification and production of surface texture, and the calibration of stylus instruments, and include an extensive bibliography (including standards) of selected works on surface texture.

The term 'cut-off' has been used in preference to 'sampling length' in this standard, both in geometrical definitions of parameters and also in those definitions which are principally related to electrical instrumentation. This has been done to avoid the major confusion that comes about because of the statistical term 'sampling'. Cut-off and sampling length are interpreted identically in this standard. Current practice in standards of a number of countries, including those of the International Organization for Standardization (ISO), is to use both these terms which leads to confusion and difficulties in interpretation.

Possibly the two most important aspects related to the specifying, producing and controlling of surface roughness are: first, typical roughness values ( $R_a$ ) which may be associated with ordinary materials, using common production processes; and, secondly, the typical relationship of surface roughness values ( $R_a$ ) to production time, employing commonly-used machine tools and processes. Both of the foregoing are useful tools when the cost effectiveness of a process or design is being evaluated. Material on these two aspects is given in Table 3.1 and Fig. B1 respectively.

In the preparation of this standard the confusion that could result from the specification of an unrestricted range of complex parameters was very much in mind. It is generally accepted, however, that to specify a single parameter,  $R_a$ , together with the process is no longer sufficient to meet all the needs of industry and that an extended group of parameters needs formal definition. Although the number of parameters defined in this standard has been increased above that in the present Australian standard (AS 1965), only parameters which have achieved a high degree of acceptance by the major industrial nations and ISO have been included in the formal part. The large number of parameters and functions referred to in Appendix D have been included as reference material to aid in interpreting manufacturing specifications originating outside Australia and a fuller understanding of the subject.

Wherever possible the work of ISO/TC 57 has been taken into account in the preparation of this standard. This standard therefore has been based on and is in agreement with the following ISO standards:

ISO/468	Surface Roughness
ISO/2632	Roughness Comparison Specimens Part 1: Turned, ground, bored, milled, shaped and planed Part 2: Spark-eroded, shot-blasted, grit-blasted and polished Part 3: Cast surfaces
ISO/3274	Instruments for the measurement of surface roughness by the profile method—Contact (stylus) instruments of consecutive profile transformation—Contact profile meters, system M.
ISO/4287/1	Surface Roughness Terminology Part 1: Surface and its parameters

The following overseas standards were also taken into account:

BS 1134	Method for the Assessment of Surface Texture Part 1: Method and instrumentation Part 2: General information and guidance
ANSI B46.1	Surface Texture, Surface Roughness, Waviness and Lay
ANSI Y14.36	Engineering Drawings and Related Documentation and Practices—Surface Texture Symbols

Acknowledgement is made to BSI for material from BS 1134 used in this standard.

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